



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,897	03/15/2004	Kun Tan	MS1-1885US	1462
22801	7590	08/06/2007		
LEE & HAYES PLLC 421 W RIVERSIDE AVENUE SUITE 500 SPOKANE, WA 99201			EXAMINER NGO, NGUYEN HOANG	
			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			08/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/800,897

Applicant(s)

TAN ET AL.

Examiner

Nguyen Ngo

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 5/23/2005 and 6/20/2005 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Examiner believes that the IDS of 5/23/2005 and 6/20/2005 were improperly filed as the inventor and title are different from what is seen on the Bib Data Sheet.

Drawings

2. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

Art Unit: 2616

Examiner believes that the submission of replacement drawings submitted 6/03/2005, were improperly filed, as the inventor and title are different from what is seen on the Bib Data Sheet.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 17-21 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Claim 17 claims the non-statutory subject matter of a program. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1754 (claim to a data structure per se held nonstatutory). Therefore, since the claimed programs are not tangibly embodied in a physical medium, encoded on a computer-readable medium and clearly recited as a computer program then the Applicants has not complied with 35 U.S.C 101.

Art Unit: 2616

Examiner suggests using such phrases as "A computer readable medium embedded with a computer executable program including instructions for".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-3, 5-11, 13-17, 21-23, 25-30 are rejected under 35 U.S.C. 102(a) as being anticipated by Sarolahti et al: "F-RTO: An Enhanced Recovery Algorithm For TCP Retransmission Timeouts", hereinafter referred to as Sarolahti.

Regarding claim 1, 17, 22, 23, 28, Sarolahti discloses a method for responding to a spurious timeout (recovery algorithm for TCP retransmission timeouts, abstract page 51), comprising:

adjusting congestion state values (the TCP sender (transmitter to transmit data packets) cannot surely know at this point whether the segment that triggered the RTO (transmission timer) was actually lost, adjusting the congestion control parameters after the RTO is the conservative action, page 54 first paragraph right side);

maintaining a data flow on a network in accordance with the adjusted congestion state values (TCP sender continues as in the normal congestion avoidance, page 54 first paragraph right side); and

re-transmitting previously transmitted data when the previously transmitted data has been deemed to be lost on the network (there is no sufficient evidence that any of the segments was delayed. Therefore, the sender proceeds with retransmissions similarly to the conventional RTO recovery algorithm, page 54 third paragraph right side).

Regarding claim 2, Sarolahti discloses a method according to Claim 1, where the adjusting the congestion state values includes:

restoring a slow-start threshold value (ssthresh is adjusted, page 54 left side);

setting a pipe value (page 62 last paragraph left side); and

re-setting an initial value of a congestion window (setting congestion window size, page 54 left side).

Regarding claim 3, Sarolahti discloses a method according to Claim 2, wherein the slow-start threshold is a value of usable bandwidth detected prior to the timeout (reverting the congestion control parameters to the state preceding the spurious RTO, page 62 last paragraph left side).

Regarding claim 5, Sarolahti discloses a method of Claim 2, wherein the re-setting the initial value of the congestion window includes setting the congestion window to be double that of a maximum data segment size (set congestion window to three segments, page 54 third paragraph right side).

Regarding claim 6, Sarolahti discloses a method according to Claim 2, wherein maintaining a data flow in accordance with the adjusted congestion state values includes:

- transmitting a data packet;

- receiving an acknowledgement; and

- re-setting the congestion window by adding the maximum data segment size capable of being sent by the sending host (page 54).

Regarding claim 7, Sarolahti discloses a method according to Claim 2, wherein re-transmitting previously transmitted data when the previously transmitted data has been deemed to be lost on the network includes re-transmitting previously transmitted data when three duplicate acknowledgements are received by a sending host (fast retransmit mechanism to trigger retransmission after receiving three duplicate ACKS, page 51 second paragraph right side).

Regarding claim 8, 21 Sarolahti discloses a method according to Claim 7, further comprising implementing a slow-start recovery process (page 53 third paragraph right side).

Regarding claim 9, Sarolahti discloses a method according to Claim 7, further

comprising implementing a slow-start recovery process, which includes: readjusting the pipe value; and re-setting the size of the congestion window in accordance with a pattern of received acknowledgements (page 54 and page 62).

Regarding claim 10, Sarolahti discloses a method for responding to a spurious timeout on a network (an enhanced recovery algorithm for TCP retransmission timeouts, page 51 abstract), comprising:

restoring congestion state values (the TCP sender cannot surely know at this point whether the segment that triggered the RTO was actually lost, adjusting the congestion control parameters after the RTO is the conservative action, page 54 first paragraph right side), including setting a limit of data that a sending host can send over the network before receiving an acknowledgement (the sender waits for the next two ACKS before deciding on what to do with the congestion window, page 54 third paragraph left side)

maintaining a data flow from the sending host (TCP sender continues as in the normal congestion avoidance, page 54 first paragraph right side); and

resetting, upon receiving an acknowledgement, the limit of data that the sending host can send over the network before receiving an acknowledgement (first ACK after RTO arrives at the sender, page 54).

Art Unit: 2616

Regarding claim 11, Sarolahti discloses a method according to Claim 10, wherein restoring congestion state values includes:

restoring a threshold value of available bandwidth prior to the spurious timeout; and

adjusting an estimate of data outstanding on the network prior to the spurious timeout (reverting the congestion control parameters to the state preceding the spurious RTO, page 62 last paragraph left side).

Regarding claim 13, 25, 29 Sarolahti discloses a method according to Claim 10, wherein the limit of data that the sending host can send over the network before receiving an acknowledgement is re-set, upon receiving an acknowledgement, by adding the maximum data segment size that the sending host can send (set the congestion window to three segments, page 54 third paragraph right side).

Regarding claim 14, Sarolahti discloses a method according to Claim 10, further comprising re-transmitting data when data previously transmitted over the network is confirmed to be lost on the network (there is no sufficient evidence that any of the segments was delayed. Therefore, the sender proceeds with retransmissions similarly to the conventional RTO recovery algorithm, page 54 third paragraph right side).

Regarding claim 15, 26, 30 Sarolahti discloses a method according to Claim 14, wherein data previously transmitted over the network is confirmed to be lost on the

Art Unit: 2616

network upon receiving three duplicate acknowledgements (fast retransmit mechanism to trigger retransmission after receiving three duplicate ACKS, page 51 second paragraph right side).

Regarding claim 16, 27 Sarolahti discloses a method according to Claim 9, further comprising maintaining a data flow according to a slow-start recovery process (page 53 third paragraph right side).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 4, 12, 18, 19, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarolahti et al: "F-RTO: An Enhanced Recovery Algorithm For TCP Retransmission Timeouts", hereinafter referred to as Sarolahti.

Regarding claims, 4 and 18 Sarolahti fails to specifically disclose wherein setting the pipe value includes adding a maximum segment size capable of being sent by a sending host to the difference between the maximum sequence number sent so far and the lowest sequence number that is not yet acknowledged. Sarolahti however discloses of different alternatives in setting congestion control parameters (page 62 last paragraph left side). It would have thus been obvious to a person skilled in the art to specifically set the pipe value a certain way, such as the claim limitation of setting the pipe value, in order to efficiently determine the algorithm for retransmission timeouts with the best performance.

Regarding claim 12, 19, 24 Sarolahti fails to specifically disclose limiting the data that the sending host can send over the network before receiving an acknowledgement be set to twice the maximum data segment size that the sending host can send. Sarolahti however discloses that the congestion window is not yet set to one segment and that the sender waits for the next two ACKS before deciding what to do with the congestion window (page 54 third paragraph left side). Sarolahti further discloses of different alternatives that may be used (page 62 last paragraph left side). It would have thus been obvious to a person skilled in the art at the time the invention was made to set the limit on the data that the sending host can send before receiving an ACK to be set to twice the maximum data segment size in order to efficiently determine the algorithm with the best performance to avoid unnecessary retransmissions following the spurious timeouts.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Hatime (US 2005/0165948), Systems and Method For Improving Network Performance.

b) Liao et al. (US 7046672), Robust, Inferentially Synchronized Transmission Of Compressed Transport-Layered-Protocol Headers.

c) Ha et al. (US 2002/0150048), Data Transport Acceleration And Management Within A Network Communication System.

d) Ahuja et al. (US 2005/0135248), Methods And Application for Avoiding Slow-Start Restart In Transmission Control Protocol Network Communications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Ngo whose telephone number is (571) 272-8398. The examiner can normally be reached on Monday-Friday 7am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

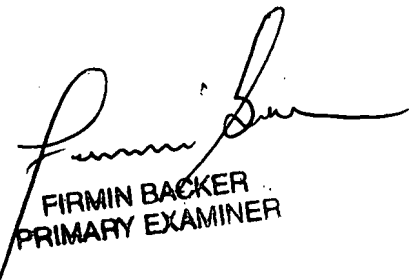
Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

N.N.

Nguyen Ngo

United States Patent & Trademark Office
Patent Examiner AU 2663
(571) 272-8398



FIRMIN BACKER
PRIMARY EXAMINER